IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

In Re Application of: **Penk et al.**	Group Art Unit: **2143**
Serial No.: **09/976,604**	Examiner: **England, David E.**
Filed: **October 12, 2001**	Docket No.: **A-6727** **(191910-1800)**
For: **Mechanism for Implementing Network Discovery in a Cable Network**	

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
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Sir:

This Appeal Brief under 37 C.F.R. § 41.37 is submitted in support of the Notice of Appeal filed on August 7, 2007, responding to the final Office Action mailed May 7, 2007 (Part of Paper No./Mail Date 20070425) and to the Notice of Panel Decision from Pre-Appeal Brief Review mailed November 23, 2007 (Part of Paper No./Mail Date 20071119).

I. REAL PARTY IN INTEREST

The real party in interest of the instant application is Scientific-Atlanta, Inc., having its principal place of business at 5030 Sugarloaf Parkway, Lawrenceville, GA 30044. Scientific-Atlanta, Inc., the assignee of record, is wholly owned by Cisco Systems, Inc.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

III. STATUS OF THE CLAIMS

Claims 1-43 stand cancelled. Claims 20 and 21 were cancelled in the Response filed April 26, 2006, and claims 1-19 and 22-43 were cancelled in the Response mailed September 6, 2006.

Claim 44-69 stand finally rejected by the Office Action mailed May 7, 2007, and are the subject of this appeal.

IV. STATUS OF AMENDMENTS

There have been no claim amendments made after the final Office Action, and all amendments made before the final Office Action have been entered. The claim listing in section *VIII. Claims – Appendix* (below) represents the present state of the claims.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

Embodiments of the claimed subject matter are summarized below with reference numbers and references to the written description ("specification") and drawings. The subject matter described below appears in the original disclosure at least where indicated, and may further appear in other places within the original disclosure.

Embodiments according to independent claim 44 involve a system for mapping a digital network. The system comprises a controller (p. 7, line 25 to p. 8, line 35; 234 in FIG. 2) and a plurality of network devices in communication with the controller. (p. 7, line 25 to p. 8, line 35; 214, 216, 218, 220, 222, 224, 228, and 230 inFIG. 2.) Each network device is configured to receive a transport stream that includes a stream of data packets, where each data packet includes a header and a data payload. (FIG. 2; FIG. 3.) The controller is configured to send an initiate signal. (p. 16, lines 5-30; FIG. 5.) Each network device is further configured to receive the initiate signal from the controller and in response, to generate a network message and send the network message to the controller. (p. 16, line 25 to p. 18, line 5; FIG. 5.) The network message includes information associated with the respective network device. (p. 17, line 5 to p. 18, line 5; FIG. 5.) In response to receiving the network messages from the network devices, the controller generates a transport stream map. (p. 18, lines 5-25; p. 19, line 15 to p. 21, line 30; FIG. 5.) The transport stream map represents a flow of transport streams among the plurality of network devices. (p. 12, lines 15-35; p. 13, line 30 to p. 15, line 20; FIG. 4.)

Embodiments according to independent claim 51 involve a method for mapping a digital network. The method comprises transmitting an initiate signal to a plurality of devices within the digital network. (p. 16, lines 5-30, FIG. 5; 214, 216, 218, 220, 222, 224, 228, and 230 inFIG. 2.) The initiate signal is a request for information. (p. 16, lines 5-30; FIG. 5.) The plurality of devices is configured to transmit and receive transport streams. (FIG. 2; FIG. 3.) The method further comprises receiving a network message from each of the plurality of devices. (p. 16, line 25 to p. 18, line 5; FIG. 5.) Each network message includes a device identifier for identifying the respective device, an input transport stream identifier for identifying one or more transport streams that the respective device receives, and an output transport stream identifier for identifying one or more transport streams that the respective device transmits. (p. 17, line 5 to p. 18, line 5; FIG. 5.) The method further includes grouping the devices into tiers and associating a first device of a first tier with a second device of a second tier based on information related to the input transport stream identifiers and output transport stream identifiers. (p. 12, lines 15-35; p. 13, line 30 to p. 15, line 20; FIG. 4; p. 18, lines 5-25; p. 19, line 15 to p. 21, line 30; FIG. 5). The grouping occurs in response to receiving the network messages from the plurality of devices. (p. 12, lines 15-35; p. 13, line 30 to p. 15, line 20; FIG. 4; p. 18, lines 1-15.)

Embodiments according to independent claim 59 involve a method of mapping a digital network. The method comprises assigning a unique transport stream identifier to each transport stream of a plurality of transport streams. (p. 18, line 25 to p. 19, line 25; p. 20, lines 25-35; p. 21, line 10-30.) The transport streams are transmitted from a plurality of devices included in the digital network. (p. 7, line 25 to p. 8, line 35; 214, 216, 218, 220, 222, 224, 228, and 230 inFIG. 2.) Each device transmits a plurality of transport streams. (FIG. 2; FIG. 3.)The method further comprises associating each assigned unique transport stream identifier with a particular device of the plurality of devices. (p. 18, line 25 to p. 19, line 25; p. 20, lines 25-35; p. 21, line 10-30.) The particular device transmits the transport stream having the unique transport stream

identifier assigned thereto. (p. 18, line 25 to p. 19, line 25; p. 20, lines 25-35; p. 21, line 10-30.) The method further comprises transmitting to each device of the plurality of devices an assigned unique transport stream identifier associated therewith. (p. 18, line 25 to p. 19, line 25; p. 20, lines 25-35; p. 21, line 10-30.) The method further comprises receiving a network message from multiple devices of the plurality of devices. (p. 16, line 25 to p. 18, line 5; FIG. 5.) Each network message includes at least one input transport stream identifier. (p. 17, line 5 to p. 18, line 5; FIG. 5.) The method further comprises using the multiple network messages to determine a hierarchy of devices for the plurality of devices. (p. 18, lines 5-25; p. 19, line 15 to p. 21, line 30; FIG. 5.)

Embodiments according to dependent claim 49 involve the system of claim 48, wherein the controller is further configured to determine if a conflict exists between two TSIDs, and, in response to determining that a conflict exists, creating unique TSIDs to resolve the conflict. (p. 18, line 15 to p. 20, line 10.)

Embodiments according to dependent claim 55 involve the method of claim 51, further comprising: determining whether a particular transport stream identifier associated with a particular transport stream of a plurality of transport streams transmitted from a particular device of a given tier is the same as one or more transport stream identifiers associated with other transport streams transmitted from one or more devices of the given tier (p. 18, lines 15-25; p. 19, lines 30-35; p. 21 to p. 20, line 10); responsive to determining the particular transport stream identifier is not the same, associating the particular device with the particular transport stream identifier (p. 18, lines 15-25; p. 19, line 30 to p. 20, line 10; p. 20, lines 15-35); responsive to determining the particular transport stream identifier is the same: determining a new transport stream identifier for the particular transport stream, wherein the new transport stream identifier is different from other transport stream identifiers associated with transport streams transmitted from the devices of the given tier (p. 18, line 20 to p. 19, line 5; p. 19, line 30 to p. 20, line10); transmitting a remap message to the particular device (p. 18, line 25 to

p. 19, line 5; p. 19, line 30 to p. 20, line 10; p. 21, lines 1-20), wherein the particular device responds thereto by remapping the particular transport stream identifier associated with the particular transport stream to the new transport stream identifier (p. 18, line 30 to p. 19, line 5; p. 19, line 30 to pl. 20, line 15; p. 21, lines 1-15); and associating the particular device with the new transport stream identifier (p. 19, lines 1-25; p. 20, lines 10-25; p. 2, lines 5-25)

Embodiments according to claim 65 involve the method of claim 64, further comprising: determining whether the first plurality of devices is the same as the second plurality of devices (p. 18, lines 15-25; p. 19, lines 30-35; p. 21 to p. 20, line 10); and responsive to determining that the first plurality of devices is not the same as the second plurality of devices, generating an alert message (p. 24, line 30 to p. 25, line 5).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The following grounds of rejection are to be reviewed on appeal.

A. Claims 44-48, 51-54, 59-64, and 66-69 stand rejected under 35 U.S.C. §102(e) as allegedly being unpatentable over *Teraoka* (U.S. Patent No. 6,292,836).

B. Claims 49, 50, 55-58, and 65 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *Teraoka* in view of *Rao* (U.S. Patent No. 6,789,118).

VII. ARGUMENT

A. Rejection of Claims 44-48, 51-54, 59-64, and 66-69 under 35 U.S.C. §102: *Teraoka*

1. Independent Claim 44

It is axiomatic that "[a]nticipation requires the disclosure in a single prior art reference of each element of the claim under consideration." *W. L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1654, 220 USPQ 303, 313 (Fed. Cir. 1983). Therefore, every claimed feature of the claimed invention must be represented in the applied reference to constitute a proper rejection under 35 U.S.C. § 102(e). *Teraoka* does not disclose, teach, or suggest "the controller

generates a transport stream map, the transport stream map representing a flow of transport streams among the plurality of network devices" as recited in claim 44.

(a) The rejection of claim 44 does not clearly explain which features in *Teraoka* allegedly correspond to the "generates" feature recited in claim 44

The rejection of claim 44 (pp. 2-3) alleges that every feature recited in claim 44 is taught by the same 25 lines of *Teraoka*: "col. 6, lines 20-35, 'VendPointAddr-B = {VIP_C, port_C}' & col. 6, line 54-col. 7, line 8 'VIP address of computer C = VIPAddr_C, IP address of computer C = IPaddr_D' ". Appellants disagree.

Teraoka is generally directed to arrangements which "allow the initially established logical communication channel to remain intact and available even if a computing entity is moved from one computer to another or if a computer in which a computing entity resides is relocated within the network." (Abstract.) A portion of *Teraoka* immediately preceding the portion cited in the rejection describes how particular packet header fields are used when sending packets between two computers, specifically, the source IP address, destination IP address, source VTCP connection end point address, destination VTCP connection end point address, source VTCP connection end point identifier, and destination VTCP connection end point identifier. (Col. 5, line 25 to Col. 6, line 20.) The first portion of *Teraoka* cited in the rejection of claim 44 further describes how movement of a VTCP endpoint from one computer to another is handled by modifying these header fields, and how one computer notifies another about the endpoint relocation. (Col. 20, lines 20-50.) The second portion of *Teraoka* cited in the rejection further describes how movement of a computer from one network location to another is handled by modifying these header fields, and how one computer notifies another about the computer relocation. (Col. 20, lines 20-50.)

The Office Action has failed to explain how these features of *Teraoka* teach a map, or a transport stream map, or generating a transport stream map, much less "generating a transport stream map which represents a flow of transport streams among the plurality of network

devices" as recited in claim 44. Appellants have closely reviewed *Teraoka*, but find no relevant teaching that can properly correspond to this feature.

(b) The "Response to Arguments" discussion of claim 44 uses an interpretation of the claim language which is not taught by *Teraoka*

Although the rejection of claim 44 itself is unclear, the "Response to Arguments" section of the final Office Action does provide some indication of the Examiner's position on which feature in *Teraoka* allegedly corresponds to "the controller generates a transport stream map, the transport stream map representing a flow of transport streams among the plurality of network devices" as recited in claim 44. Specifically, the Office Action states:

> *[T]he interpretation of transport stream maps appears to be information utilized in routing tables, i.e., mapping a network.* The 'flow of a transport stream' can be interpreted as the connections in the network, from one node to another, that a stream of information would have to traverse or flow. *Teraoka teaches that each packet is utilized to map out where in the network their device is located* and therefore the information that is sent is routing or mapping information to update information in their tables. (Office Action, p. 7, section 25, emphasis added.)

It appears, from the sections emphasized above, that the Office Action is interpreting the language "generates a transport stream map" in claim 44 as "determining the location of devices in a network". Even assuming that the Examiner's interpretation is correct (a point which Appellants do not concede), *Teraoka* does <u>not</u> teach "that each packet is utilized to map out where in the network their device is located", for at least the following reasons.

This section of the Office Action refers to "routing tables" and "information that is sent is routing or mapping information to update information in their tables". Appellants first note that the only discussion in *Teraoka* of "routing tables" is as follows:

> FIG. 5 shows a typical constitution of a home router (router) 100 used by the network to which this invention applies. A packet is received by one of network interfaces 31a through 31c (transmitting means), and is forwarded by one of the network interfaces 31a through 31c which is determined by a transmitting network interface determining unit 32 (generating means). *The packet-forwarding network interface is determined by use of a routing table 33.* The router 100 also has a table that associates VIP addresses with IP addresses.

> As shown in FIG. 6, *computers such as a mobile host 24 and a host 25 each include* illustratively a table (VTCP ID-address table) 43 that associates the identifiers of VTCP connection end points with their addresses; a table (AMT) 42 that associates the VIP addresses of computers with their IP addresses; *a routing table 41*; and a network interface 44.
> (Col. 7, lines 10-25, emphasis added.)

This brief mention of "a routing table", as understood by a person of ordinary skill in the art, does not teach "determining the location of devices in a network using routing tables", the Examiner's interpretation of claim 44.

Other portions of *Teraoka* (not cited in the rejection of claim 44) discuss the content and use of several other "tables":

> Mapping from any VIP address to the corresponding IP address is done efficiently by use of a cache called an *AMT (address mapping table)* in the VIP layer. In the description that follows, data units making up the AMT are each called an AMT entry. The AMT entry is composed of a VIP address, an IP address, a version number and other control information.
> (Col. 4, lines 15-20, emphasis added.)

> As shown in FIG. 6, computers such as a mobile host 24 and a host 25 each include illustratively *a table (VTCP ID-address table) 43 that associates the identifiers of VTCP connection end points with their addresses; a table (AMT) 42z* a routing table 41; and a network interface 44.
> (Col. 7, lines 20-25, emphasis added.)

> Suppose that the TCP connection end point residing in the computer B is moved to the computer C. In that case, the relocated TCP connection end point uses the home router 100 to notify the TCP connection end point on the computer A of the address of the TCP connection end point on the computer C. The notice enables the computer A and home router 100 to know the correspondence between the identifier of the TCP connection end point on the computer C and the address of that end point.
> (Col. 7, lines 30-40.)

> If the computer C (mobile host 24) is moved from a local network 21 to the wide area network 23 as shown in FIG. 1, or if the computer C is relocated within the wide area network 23, then the IP address of the computer C is changed. The correspondence between the changed IP address of the computer C and its VIP address is transmitted in a packet from the computer C to the computer A (host 25). The packet allows the home router 100 and the computer A to retain the address-to-address correspondence. Thereafter, the computers A and C may exchange packets therebetween.
> (Col. 7, lines 45-65.)

Even if address mapping table 42 and VTCP IP address table 43 are interpreted as "routing tables", this description as understood by a person of ordinary skill in the art does not teach "determining the location of devices in a network using routing tables" (the Examiner's interpretation of claim 44). Thus, *Teraoka* does not anticipate claim 44 under the Examiner's interpretation the claim.

(c) The translation feature of *Teraoka* cannot correspond to "the controller generates a transport stream map" as recited in claim 44

As discussed above, it is unclear which feature in *Teraoka* allegedly corresponds to the "generates" feature of claim 44. The portions of *Teraoka* cited in the Office Action, namely, Col. 6, lines 20-35 and Col. 6, line 54 to Col. 7, line 8, discuss translating information in packet headers from one type of data to another. Therefore, Appellants now consider the possibility that the Examiner is interpreting "generates…a map" as "generating a translation" or "translating". In that case, claim 44 would be interpreted as "generating a transport stream translation".

As discussed above, *Teraoka* teaches that some information contained in the headers of packets exchanged between computers is stored in tables, and used to translate from one type of data to another. Specifically, the VTCP ID-address table 43 is used to translate VTCP connection end point identifiers to end point addresses, and the Address Mapping Table 42 is used to translate VIP addresses to IP addresses. (Col. 7, lines 15-65.) However, even assuming that building these tables in *Teraoka* corresponds to "generating a translation", it does not correspond to a "generating a transport stream translation", for at least the following reasons.

Appellants will assume, for the sake of argument, that a TCP or VTCP connection as taught in *Teraoka* corresponds to a "transport stream". Even so, the information in each table in *Teraoka* identifies only an endpoint of a transport stream. Appellants note that an endpoint cannot identify the transport stream itself, since multiple transport streams may be transported between two particular endpoint devices. In such a case, multiple transport streams between

the same two endpoints are differentiated by transport stream identifiers. (This point was discussed earlier on p. 3 of the Appellant's Remarks in Support of Pre-Appeal Brief Conference filed August 7, 2007). Since the tables in *Teraoka* do not use transport stream identifiers, building these tables cannot be considered to be "generating a transport stream translation".

(d) Conclusion

For at least the reasons discussed above, *Teraoka* does not disclose, teach, or suggest "the controller generates a transport stream map", and the rejection of claim 44 should be overturned.

2. Independent Claim 51

It is axiomatic that "[a]nticipation requires the disclosure in a single prior art reference of each element of the claim under consideration." *W. L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1654, 220 USPQ 303, 313 (Fed. Cir. 1983). Therefore, every claimed feature of the claimed invention must be represented in the applied reference to constitute a proper rejection under 35 U.S.C. § 102(e). *Teraoka* does not disclose, teach, or suggest "grouping the devices into tiers and associating a first device of a first tier with a second device of a second tier based on information related to the input transport stream identifiers and output transport stream identifiers" as recited in claim 51.

(a) *Teraoka* does not disclose, teach, or suggest the "grouping the devices into tiers" feature recited in claim 51

As evidenced by the discussion of *Teraoka* above (in connection with claim 44), Appellants find no teaching, implicit or explicit, that a person of ordinary skill in the art would understand to correspond to the grouping feature of claim 51. Thus, the rejection of claim 51 should be overturned.

(b) The rejection of claim 51 is deficient

Appellants note that the rejection of claim 51 is deficient in several ways. First, the Office Action rejection of claim 51 (p. 5) states that "[c]laims 51-54, 59-63 and 66-60 are rejected for similar reasons stated above" (where "above" refers to the rejection of claims 44-48 and 64).

However, the scope of independent claim 51 is not coextensive with the scope of independent claim 44: claim 51 contains language which is clearly not present in claim 44. Second, Appellants note the following statements made in the "Response to Arguments" section of the Office Action, in discussing the claim language "grouping devices into tiers":

> Furthermore, artisans must be presumed to know something about the art apart from what the references disclose. In re Jacoby, 309 F.2d 1385, 163 USPQ 545 (CCPA 1969). Every reference relies to some extent on knowledge of persons skilled in the art to complement that which is disclosed herein. In re Bode, 650 F.2d 656, 193 USPQ 12 (CCPA 1977). (Office Action, p. 9, section 30.)

This passage appears to be an admission that some features of claim 51 are not in fact taught in *Teraoka*. If the Examiner is relying on his own knowledge to fill in admitted gaps in the reference, then the Office Action should have make this clear during prosecution, so that Appellants could have requested an affidavit in support of the Examiner's assertions. (C.F.R. 1.102(d)(2) requires the Examiner to provide such an affidavit on request.) If the Examiner is instead implying that specific claimed features are well-known, then it appears the rejection under §102 is improper, and that a rejection under §103 should have been used instead. If the Examiner's position is instead that some features of claim 51 are implicitly rather than explicitly disclosed in *Teraoka*, then the Office Action should have made it clear which features were implicitly disclosed, so that Appellants had a fair opportunity to respond to the rejection.

3. Independent Claim 59

It is axiomatic that "[a]nticipation requires the disclosure in a single prior art reference of each element of the claim under consideration." *W. L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1654, 220 USPQ 303, 313 (Fed. Cir. 1983). Therefore, every claimed feature of the claimed invention must be represented in the applied reference to constitute a proper rejection under 35 U.S.C. § 102(e). *Teraoka* does not disclose, teach, or suggest "using the multiple network messages to determine a hierarchy of devices for the plurality of devices" as recited in claim 59.

(a) *Teraoka* does not disclose, teach, or suggest the "determine a hierarchy of devices" feature recited in claim 59

Appellants first note that the Office Action appears to have ignored most of the features of claim 59. The rejection of claim 59 (p. 5) states that "[c]laims 51-54, 59-63 and 66-60 are rejected for similar reasons stated above" (where "above" refers to the rejection of claims 44-48 and 64), but the scope of independent claim 59 is not coextensive with the scope of independent claim 44. Claim 59 contains the feature "using the multiple network messages to determine a hierarchy of devices for the plurality of devices", and Appellants find no teaching, implicit or explicit, that a person of ordinary skill in the art would understand to correspond to this feature. Thus, the rejection of claim 59 should be overturned.

4. Claims 45-48, 52-54, 64, and 66-69

Since independent claims 44, 51, and 59 are allowable, Appellants respectfully submit that claims 45-48, 52-54, 64, and 66-69 are allowable for at least the reason that each depends from an allowable claim. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596, 1598 (Fed. Cir. 1988). Therefore, Appellants respectfully request that the rejection of claims 45-48, 52-54, 64, and 66-69 be overturned.

B. Rejection of Claims 49, 50, 55-58, and 65 under 35 U.S.C. §103: *Teraoka* in view of *Rao*

1. Claim 49

The U.S. Patent and Trademark Office ("USPTO") has the burden under section 103 to establish a prima facie case of obviousness according to the factual inquiries expressed in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). The four factual inquires, also expressed in MPEP 2100-116, are as follows:

(A) Determining the scope and contents of the prior art;

(B) Ascertaining the differences between the prior art and the claims in issue;

(C) Resolving the level of ordinary skill in the pertinent art; and

(D) Evaluating evidence of secondary considerations.

Appellants respectfully submit that a prima facie case of obviousness for claim 49 has not been established using the art of record, for at least the reason that the proposed combination does not disclose, teach, or suggest "wherein the controller is further configured to determine if a conflict exists between two TSIDs, and, in response to determining that a conflict exists, creating unique TSIDs to resolve the conflict."

The Office Action (p. 5) alleges that *Rao* teaches this feature at col. 20, lines 41-59. This portion of *Rao* is reproduced below:

> For example, a session ID 242 of "1," VPN ID 244 of "111," source address 246 of "any," source comparison mask 248 of "any," a destination address of "10.1.0.0," and a destination comparison mask 252 of "265.265.0.0" indicates a VPN session "1" for users with a VPN ID of "111" (e.g. company employees), and allows them to come from anywhere on any source address, and access any subnet on the 10.1.0.0 network (e.g. the company LAN). On the other hand, a session ID 242 of "2," VPN ID 244 of "any," source comparison mask 248 of "265.265.0.0," destination address of "208.277.214.0," and destination comparison mask 252 of "265.265.265.0" indicates a VPN session "2" for any user (VPN ID "any") on any subnet on the 10.1.0.0 network (e.g. the company LAN) to access network 207.221.211.0 (e.g. the dial-up pool for accessing the Internet). In these examples, packets are compared against each session in ascending numerical order based on the session ID. Thus, if a packet does not match against session ID 242 "1," it is then compared against session ID "2."

This portion of *Rao* describes the use of virtual private network (VPN) identifiers in a sessions table 240. Appellants submit that a VPN identifier is not the same as the TS (transport stream) identifier in claim 49. Even assuming, for the sake of argument, that a VPN identifier is the same as a TS identifier, Appellants can find nothing in the cited portion of *Rao* that corresponds to conflicts. This portion of *Rao* teaches, at most, that the same value of "265.265.0.0" can be used for more than one destination comparison mask. However, this is not the same as a conflict. Even if two masks with the same value is a conflict, *Rao* teaches at most the presence of a conflict, but not determining whether or not a conflict exists or create unique identifiers to resolve the conflict, as recited in claim 49.

Appellants find no teaching in either *Rao* or in *Teraoka* that a person of ordinary skill in the art would understand to correspond to the conflict feature of claim 49. Since the proposed

combination does not disclose, teach, or suggest every element, the rejection of claim 49 should be overturned.

2. Claim 55

The U.S. Patent and Trademark Office ("USPTO") has the burden under section 103 to establish a prima facie case of obviousness according to the factual inquiries expressed in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). The four factual inquires, also expressed in MPEP 2100-116, are as follows:

(E) Determining the scope and contents of the prior art;

(F) Ascertaining the differences between the prior art and the claims in issue;

(G) Resolving the level of ordinary skill in the pertinent art; and

(H) Evaluating evidence of secondary considerations.

Appellants respectfully submit that a prima facie case of obviousness for claim 55 has not been established using the art of record, for at least the reason that the proposed combination does not disclose, teach, or suggest "***determining*** whether a particular transport stream identifier…***is the same*** as one or more transport stream identifiers…***responsive to*** determining the particular transport stream identifier is ***not the same***, associating the particular device with the particular transport stream identifier; ***responsive to*** determining the particular transport stream identifier ***is the same***: determining a new transport stream identifier for the particular transport stream".

As an initial matter, the Office Action alleges (p. 6) that "[c]laims 55-58 and 65 are rejected for similar reasons as stated above" (where "above" refers to the rejection of claims 49 and 50). Appellants first note that the scope of claim 55 is not coextensive with the scope of claim 49, since claim 55 contains several features which are not contained in claim 49. However, since the Examiner has used the "same basis" in rejecting both sets of claims,

Appellants will refer to the Examiner's reasons for rejecting claim 49 in arguing against the rejection of claim 55.

The Office Action (p. 5) alleges that *Rao* teaches the above-described feature at col. 20, lines 41-59. This portion of *Rao* is reproduced below:

> For example, a session ID 242 of "1," VPN ID 244 of "111," source address 246 of "any," source comparison mask 248 of "any," a destination address of "10.1.0.0," and a destination comparison mask 252 of "265.265.0.0" indicates a VPN session "1" for users with a VPN ID of "111" (e.g. company employees), and allows them to come from anywhere on any source address, and access any subnet on the 10.1.0.0 network (e.g. the company LAN). On the other hand, a session ID 242 of "2," VPN ID 244 of "any," source comparison mask 248 of "265.265.0.0," destination address of "208.277.214.0," and destination comparison mask 252 of "265.265.265.0" indicates a VPN session "2" for any user (VPN ID "any") on any subnet on the 10.1.0.0 network (e.g. the company LAN) to access network 207.221.211.0 (e.g. the dial-up pool for accessing the Internet). In these examples, packets are compared against each session in ascending numerical order based on the session ID. Thus, if a packet does not match against session ID 242 "1," it is then compared against session ID "2."

This portion of *Rao* describes the use of virtual private network (VPN) identifiers in a sessions table 240. Appellants submit that a VPN identifier is not the same as the transport stream identifier in claim 55. Even assuming, for the sake of argument, that a VPN identifier is the same as a transport stream identifier, Appellants can find nothing in the cited portion of *Rao* that corresponds to determining whether two identifiers are the same. This portion of *Rao* teaches, at most, that the same value of "265.265.0.0" can be used for more than one destination comparison mask. This teaches at most the presence of two identifiers with the same value, but not determining whether the identifiers have the same value, or acting based on that determination, as recited in claim 55.

Appellants find no teaching in either *Rao* or in *Teraoka* that a person of ordinary skill in the art would understand to correspond to the same value feature of claim 55. Since the proposed combination does not disclose, teach, or suggest every element, the rejection of claim 55 should be overturned.

3. Claim 65

The U.S. Patent and Trademark Office ("USPTO") has the burden under section 103 to establish a prima facie case of obviousness according to the factual inquiries expressed in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). The four factual inquires, also expressed in MPEP 2100-116, are as follows:

(I) Determining the scope and contents of the prior art;

(J) Ascertaining the differences between the prior art and the claims in issue;

(K) Resolving the level of ordinary skill in the pertinent art; and

(L) Evaluating evidence of secondary considerations.

Appellants respectfully submit that a prima facie case of obviousness for claim 65 has not been established using the art of record, for at least the reason that the proposed combination does not disclose, teach, or suggest "***determining*** whether the first plurality of devices ***is the same*** as the second plurality of devices; and ***responsive to determining*** that the first plurality of devices ***is not the same*** as the second plurality of devices, generating an alert message".

As an initial matter, the Office Action alleges (p. 6) that "[c]laims 55-58 and 65 are rejected for similar reasons as stated above" (where "above" refers to the rejection of claims 49 and 50). Appellants first note that the scope of claim 65 is not coextensive with the scope of claim 49, since claim 65 contains several features which are not contained in claim 49. However, since the Examiner has used the "same basis" in rejecting both sets of claims, Appellants will refer to the Examiner's reasons for rejecting claim 49 in arguing against the rejection of claim 65.

The Office Action (p. 5) alleges that *Rao* teaches the above-described feature at col. 20, lines 41-59. This portion of *Rao* is reproduced below:

> For example, a session ID 242 of "1," VPN ID 244 of "111," source address 246 of "any," source comparison mask 248 of "any," a destination address of "10.1.0.0," and a destination comparison mask 252

> of "265.265.0.0" indicates a VPN session "1" for users with a VPN ID of "111" (e.g. company employees), and allows them to come from anywhere on any source address, and access any subnet on the 10.1.0.0 network (e.g. the company LAN). On the other hand, a session ID 242 of "2," VPN ID 244 of "any," source comparison mask 248 of "265.265.0.0," destination address of "208.277.214.0," and destination comparison mask 252 of "265.265.265.0" indicates a VPN session "2" for any user (VPN ID "any") on any subnet on the 10.1.0.0 network (e.g. the company LAN) to access network 207.221.211.0 (e.g. the dial-up pool for accessing the Internet). In these examples, packets are compared against each session in ascending numerical order based on the session ID. Thus, if a packet does not match against session ID 242 "1," it is then compared against session ID "2."

This portion of *Rao* describes the use of virtual private network (VPN) identifiers in a sessions table 240. Appellants can find nothing in the cited portion of *Rao* that corresponds to determining whether two devices are the same. This portion of *Rao* teaches, at most, that the same value of “265.265.0.0” can be used for more than one destination comparison mask. Even assuming, for the sake of argument, that a destination comparison mask is the same as a device, this teaches at most the presence of two devices that are the same, but not determining whether the devices are the same, or acting based on that determination, as recited in claim 65.

Appellants find no teaching in either *Rao* or in *Teraoka* that a person of ordinary skill in the art would understand to correspond to the same device feature of claim 65. Since the proposed combination does not disclose, teach, or suggest every element, the rejection of claim 65 should be overturned.

C. Conclusion

For at least the reasons discussed above, Appellants respectfully request that the Examiner's final rejection of claims 44-69 be overturned by the Board, and that the application be allowed to issue as a patent with pending claims 44-69.

Respectfully submitted,

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VIII. CLAIMS – APPENDIX

44. A system for mapping a digital network, the system comprising:

a controller configured to send an initiate signal; and

a plurality of network devices in communication with the controller, each network device configured to receive a transport stream that includes a stream of data packets, each data packet including a header and a data payload, each of the plurality of network devices further configured to receive the initiate signal from the controller;

wherein, in response to receiving the initiate signal from the controller, each of the plurality of network devices generates a network message and sends the network message to the controller, the network message including information associated with the respective network device; and

wherein, in response to receiving the network messages from the network devices, the controller generates a transport stream map, the transport stream map representing a flow of transport streams among the plurality of network devices.

45. The system of claim 44, wherein each of the network messages includes a device identifier, which is associated with the device that transmits the network message to the controller.

46. The system of claim 45, wherein each of the network messages includes a transport stream identifier, which is associated with a given transport stream, wherein the given transport stream is a transport stream received and monitored by the device associated with the device identifier.

47. The system of claim 45, wherein each of the network messages includes network information related to at least one characteristic of the digital network.

48. The system of claim 44, wherein each of the network messages includes an input transport stream identifier (input TSID) and an output transport stream identifier (output TSID), the input TSID identifying the transport stream received by the respective network device and the output TSID identifying the transport stream transmitted by the respective network device.

49. The system of claim 48, wherein the controller is further configured to determine if a conflict exists between two TSIDs, and, in response to determining that a conflict exists, creating unique TSIDs to resolve the conflict.

50. The system of claim 49, wherein the controller is configured to transmit a message to a particular device associated with the conflicting TSID, and in response to the second message, to remap the output TSID to the unique TSID.

51. A method of mapping a digital network, the method comprising:

transmitting an initiate signal to a plurality of devices within the digital network, the plurality of devices configured to transmit and receive transport streams, wherein the initiate signal is a request for information;

receiving a network message from each of the plurality of devices, each network message including a device identifier for identifying the respective device, an input transport stream identifier for identifying one or more transport streams that the respective device receives, and an output transport stream identifier for identifying one or more transport streams that the respective device transmits; and

in response to receiving the network messages from the plurality of devices, grouping the devices into tiers and associating a first device of a first tier with a second device of a second tier based on information related to the input transport stream identifiers and output transport stream identifiers.

52. The method of claim 51, wherein grouping the devices further comprises:

using the device identifier included in each of the network messages and a table to group the plurality of devices into tiers.

using the device identifier included in each of the network messages and a table to group the plurality of devices into tiers.

53. The method of claim 51, wherein the input transport stream identifier includes a network transport stream source indicator.

54. The method of claim 53, wherein the network transport stream source indicator is a predetermined value for a device that is a source of a network transport stream in the digital network.

55. The method of claim 51, further comprising:

determining whether a particular transport stream identifier associated with a particular transport stream of a plurality of transport streams transmitted from a particular device of a given tier is the same as one or more transport stream identifiers associated with other transport streams transmitted from one or more devices of the given tier;

responsive to determining the particular transport stream identifier is not the same, associating the particular device with the particular transport stream identifier;

responsive to determining the particular transport stream identifier is the same:

determining a new transport stream identifier for the particular transport stream, wherein the new transport stream identifier is different from other transport stream identifiers associated with transport streams transmitted from the devices of the given tier;

transmitting a remap message to the particular device, wherein the particular device responds thereto by remapping the particular transport stream identifier associated with the particular transport stream to the new transport stream identifier; and

associating the particular device with the new transport stream identifier.

56. The method of claim 65, wherein, after transmitting the remap message, the method further comprises:

receiving another network message from a second particular device, wherein the second particular device receives the particular transport stream transmitted from the first particular device.

57. The method of claim 56, wherein the second particular device sends the other network message responsive to the first particular device remapping the particular transport stream identifier associated with the particular transport stream.

58. The method of claim 65, further comprising:

associating the particular device with at least one input transport stream identifier, wherein the network message from the particular device includes the at least one transport stream identifier, which is associated with the at least one transport stream received in the particular device.

59. A method of mapping a digital network, the method comprising:

assigning a unique transport stream identifier to each transport stream of a plurality of transport streams, wherein the plurality of transport streams are transmitted from a plurality of devices included in the digital network and wherein each device of the plurality of devices transmits a plurality of transport streams;

associating each assigned unique transport stream identifier with a particular device of the plurality of devices, wherein the particular device transmits the transport stream having the unique transport stream identifier assigned thereto;

transmitting to each device of the plurality of devices an assigned unique transport stream identifier associated therewith;

receiving a network message from multiple devices of the plurality of devices, each network message including at least one input transport stream identifier; and

using the multiple network messages to determine a hierarchy of devices for the plurality of devices.

60. The method of claim 59, wherein the at least one input transport stream identifier is one of the unique transport stream identifiers.

61. The method of claim 59, wherein using the multiple network messages further comprises: associating a first device of the plurality of devices with a second device of the multiple devices, wherein the at least one input transport stream identifier of the network message from the second device includes at least one unique transport stream identifier associated with the first device.

62. The method of claim 59, further comprising:

prior to the step of assigning, receiving a second network message from the plurality of devices, each second network message per device including an output transport stream identifier.

prior to assigning the unique transport stream identifier, receiving a second network message from the plurality of devices, each second network message including an output transport stream identifier.

63. The method of claim 62, wherein assigning the unique transport stream identifier further comprises:

using the output transport stream identifier included in each second network message from the plurality of devices to assign the unique transport stream identifier.

64. The method of claim 62, wherein, prior to receiving the second network message, the method further comprises:

sending a mapping initiation message to a second plurality of devices included in the digital network, wherein the second plurality of devices includes the first plurality of devices, and each of the first plurality of devices respond to the mapping initiation message by sending the second network message.

65. The method of claim 64, further comprising:

determining whether the first plurality of devices is the same as the second plurality of devices; and

responsive to determining that the first plurality of devices is not the same as the second plurality of devices, generating an alert message.

66. The method of claim 59, further comprising:

prior to the step of assigning, receiving a second network message from the plurality of devices, each second network message per device including a transmitter identifier associated with the device sending the message.

prior to the step of assigning, receiving a second network message from the plurality of devices, each second network message per device including a transmitter identifier associated with the device sending the message.

67. The method of claim 66, wherein the step of associating further comprises:

using the transmitter identifier included in each second network message from the plurality of devices to associate each assigned unique transport stream identifier with the particular device that transmits the transport stream having the unique transport stream identifier assigned thereto.

68. The method of claim 66, wherein, prior to receiving the second network message, the method further comprises:

sending a mapping initiation message to a second plurality of devices included in the digital network, wherein the second plurality of devices includes the first plurality of devices, and each of the first plurality of devices respond to the mapping initiation message by sending the second network message.

69. The method of claim 68, further comprising:

determining whether the first plurality of devices is the same as the second plurality of devices; and

responsive to determining the first plurality of devices is not the same as the second plurality of devices, generating an alert message.

IX. EVIDENCE – APPENDIX

None.

X. RELATED PROCEEDINGS – APPENDIX

None.